IN THE SPECIFICATION:

At page 1, after the Title, please insert the following paragraph as the first paragraph of the application:

This is a division of Application No. 09/387,828, filed on September 1, 1999.

Replace the sixth paragraph of page 13 with the following paragraph:

Figs. 7a, 7b, when combined, [Fig. 7] is a schematic block diagram of an embodiment of the invention representing interrelationships between the embodiment of Fig. 1 and a further defined user network; and wherein the same numerals denote like parts.

Replace the second paragraph of page 15 with the following paragraph:

With reference now to Fig. 2, in an analogous manner as herein described with reference to the embodiment of Fig. 1, users 16 define a demand for hydrogen, provided by a plurality of individual electrolysers 10 under the control of controller 14, from electrical energy source [22] 2.

Replace the first full paragraph of page 16 with the following paragraph:

Upon receipt of the demand, controller 14 determines the availability of electrical energy resources [22] 2 to which it is interconnected with respect to the amount of energy available, the nature of the power available, in regard to current and voltage, the time availability of the energy, the type of electrical energy source available, the unit price per increment of electrical energy and compares this to the power required to generate the hydrogen demanded by users 16.

Replace the third paragraph of page 16 with the following paragraph:

After controller 14 determines the initial status of electrolyser(s) 10, the hydrogen demand by users 16 and the nature and availability of the electrical sources on the network, controller 14 then initiates the starting sequence for electrolyser(s) 10 to meet the demands of users 16 subject to the availability of electrical energy resource(s) [22] 2 at the lowest possible cost.

Replace the first paragraph of page 17 with the following paragraph:

Upon receiving notification from user 16 that their requirements have been successfully met, controller 14 instruct electrolyser(s) 10 to cease operation and informs electrical energy source(s) [22] 2 of the revised change in electrical demand.

Replace the last paragraph of page 17, continued on page 18 with the following paragraph:

In real time, or at some later time as desired by users 16, control network hub 50 analyses the status and needs of the users via master network controller 48 and the status of energy sources 52 and provides an optimized algorithm to meet the needs of the users, while providing plant load shifting, plant operation scheduling, plant outage/maintenance, all at a documented minimal acceptable cost to the user. Energy sources 52 can access the status of the network and transmit data along data conduit [56] 54 by means as described above to an administrative center 58 where data analysis of asset utilization, costing, and the like, can be performed and dynamically linked back to control network hub 50, which manages both users 16 demand and sources 52 supply in an optimized fashion. Security barrier 60 may be present at various locations in the network to ensure confidentiality and privileged data exchange flow to respective users 16, sources 52 and administrative centers 58 so as to maintain network security.

Please replace the text beginning at line 4, page 19 and ending line 29, page 21 with the following:

With reference now to Fig. 7 users 716 include ~~at least one geographic zone 718 within~~ a building unit 717, having at least one geographic zone 718, whose tenancy may be residential, as in an apartment, semi-attached, detached dwelling, and the like, or industrial/commercial, as in an office, plant, mall, factory, warehouse, and the like, and which defines a demand for hydrogen. Such user 716 may transmit its demand by (i) use of a credit card, (ii) use of a smart card, or (iii) use of an electronic, electric, or wireless data transmission, to register a hydrogen demand within zone 718 to a zone controller 720 exemplifying zone data control and supply means.

Upon receipt of the demand, zone controller 720 determines the nature of the demand with respect to the quantity of hydrogen requested, the time to deliver the hydrogen, the conditions under which to deliver the hydrogen with respect to temperature, pressure, purity and the like, the end utilization purpose of the hydrogen, and the rate of delivery of the hydrogen requested. Such initial definition of this hydrogen demand may be performed by a single or a plurality of zone controller(s) 720 interconnected in a network configured as a "hub", "star", "ring" or "backbone" as exemplified in Figs. 1A-1C, in such a way as to permit intercommunication between all controllers 720 to a unit controller 721 for the unit 717 exemplifying a building data and control supply means via bus 722.

Upon receipt of the demand by unit controller 721 from the network of zone controllers 720, unit controller 721 determines the availability of all energy resources 12 available to building unit 717 ~~units 716~~ by polling the status from a network controller 14 to which it is interconnected with respect to the amount of energy available, the nature of the power available, the time availability of the energy, the type of energy source available, the unit price per increment of energy and compares this to the energy required to generate the energy, the type of energy source available, the unit price per increment of energy and compares this to the energy required to generate the hydrogen demanded by unit 717 ~~all units 716~~ and subsequent zones 718.

Upon receipt of the demand, network controller 14 further determines the status of all hydrogen producing sources 10 on the network. Initial checks include the current status of the hydrogen source, percentage use of rated capacity, rated capacity to produce hydrogen of a known quantity for a know amount of energy consumption and monitoring of the process parameters for starting the hydrogen production source(s), process valves and electrical switch status. Network controller 14 then initiates the starting sequence for hydrogen producing source(s) 10 to meet the demands of unit 717 ~~users 716~~ and subsequent zones 718 subject to the availability of energy resource(s) 12 at the lowest possible cost.

Network controller 14 secures a quantity of energy from energy source(s) 12 at the most preferred cost to unit 717 ~~user 718~~ and updates unit controller 721 and zone controller 720 to permit hydrogen to flow through conduits 724. Energy is then consumed from energy source 12 to produce hydrogen via hydrogen production source(s) 10 for the generation of hydrogen and oxygen gases which are supplied to the unit 717 through ~~users through units 716 and 718~~ zones 718.

Hydrogen flowing in conduit 724 to unit 717 ~~716~~ is monitored by unit controller 721 which further controls the distribution of hydrogen within unit 717 ~~716~~. Hydrogen may flow so as to enter storage unit 726 for later use by a zone 718, and may flow along conduit 728 to a direct conversion device 730 for conversion of hydrogen into electricity via a fuel cell and the like (not shown) for a further central distribution within unit 717 ~~716~~. It may further be converted into heat and/or electricity by an indirect conversion device 732, such as a boiler, furnace, steam generator, turbine and the like for further central distribution within unit 717 ~~716~~ and may be further passed along conduit 728 directly to a zone 718.

Hydrogen flowing in conduit 728 to zone 718 is further monitored by unit controller 721, zone controller 720 and zone controller 734 along data bus 736 which further controls the distribution of hydrogen within zone 718. Hydrogen within the zone may flow so as to enter a direct 738 or indirect 740 conversion device within zone 718 for conversion into electricity or heat via a furnace, stove and the like (not shown).

In a further embodiment, network controller 14 ~~722~~ selects a specific type of energy source 12 to buy electricity which can be transmitted along conduits 746 ~~742, 724, 726~~ so as to arrive directly at zone 718 where conversion into hydrogen occurs within the zone by means of an electrolyser 744 for generation of hydrogen within the geographic domains of zone 718 for use by direct 738 or indirect 740 conversion devices as noted above, all under the direction of zone controller 720 or 734.

Any incorrect noted status in any of the operational parameters noted above or in the quality/purity of the product gases, will result in network controller 14, unit controller 721 and zone controller 720 to alter or intercept the operation of hydrogen source(s) 10 and 744, along with hydrogen conversion devices 730, 732, 738, 740 until an appropriate status has been reached. Controllers 14, 720, 721 and 734 also can act to modulate one or a plurality of hydrogen producing sources on the network to meet the demands of unit 717 and zones unit 717 and zones ~~users 716~~, 718 so as to successfully complete the hydrogen demand of users 716, 718 to provide the minimum quantity of hydrogen at the minimum rate of delivery over the minimum amount of time as specified at the minimum purity at the minimum cost to users 716, 718, and optionally, schedules hydrogen demand.

Upon receiving notification from unit 717 and zones ~~users 716~~, 718 that their requirements have been successfully met, controllers 14, 721 and 720 instruct hydrogen producing sources 10, 744 to cease operation and informs energy sources 12 of the revised change in energy demand and, optionally, schedules hydrogen demand.

~~Line 746 denotes the direct energy source for self-contained individual zone electrolyser~~.